

ABSTRACT OF THE DISCLOSURE

Carbon nanotube devices and methods for fabricating these devices,
wherein in one embodiment, the fabrication process consists of the following
5 process steps: (1) generation of a template, (2) catalyst deposition, and (3)
nanotube synthesis within the template. In another embodiment, a carbon
nanotube transistor comprises a carbon nanotube having two or more defects,
wherein the defects divide the carbon nanotube into three regions having differing
conductivities. The defects may be introduced by varying the diameter of a
10 template in which the carbon nanotube is fabricated and thereby causing
pentagon-heptagon pairs which form the defects.